


**NORTHGATE EXPLORATION LIMITED**  
**ANNUAL REPORT 1972**



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# Annual Report 1972

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NORTHGATE EXPLORATION LIMITED



## Financial Highlights

	1972	1971
Net smelter value	\$16,715,000	\$13,187,000
Operating income	7,149,000	4,457,000
Non-operating revenue (net)	326,000	358,000
Interest expense (including bond interest)	317,000	303,000
Cash flow	6,736,000	3,431,000
Per share	\$1.13	\$0.57
Depreciation and amortization	3,675,000	4,187,000
Income (loss) before extraordinary item	3,061,000	(756,000)
Per share	\$0.51	(\$0.13)
Net income (loss) after extraordinary item	3,061,000	(1,306,000)
Per share	\$0.51	(\$0.22)
AT YEAR END		
Working capital	\$ 5,708,000	\$ 128,000
Ratio of current assets to current liabilities	2.4 to 1	1 to 1
Total assets	39,932,000	41,327,000
Shareholders equity	35,996,000	32,935,000
Investments and advances (at cost)	13,510,000	13,193,000
Less provision for decline in value	1,400,000	1,400,000
	12,110,000	11,793,000
Fixed assets	22,965,000	21,924,000
Less accumulated depreciation	10,765,000	10,766,000
	12,200,000	11,158,000
Shares outstanding	5,981,799	5,981,799

## Production Highlights

<b>Tynagh Mine</b>	1972	1971
<b>Tons of ore treated</b>	587,233	675,781
<b>Production of concentrates</b>		
Tons of lead concentrates	57,828	53,932
Tons of zinc concentrates	35,872	43,779
Tons of bulk concentrates	39,100	52,905
Total tons of concentrates	132,800	150,616
<b>Metals contained in concentrates (a)</b>		
Lead (lbs.)	90.4 million	78.5 million
Zinc (lbs.)	61.6 million	63.9 million
Copper (lbs.)	4.1 million	4.6 million
Silver (ozs.)	1,242,000	1,057,000
<b>Gortdrum Mine</b>		
<b>Tons of ore treated in concentrator</b>	401,635	536,638
Tons of concentrates produced	11,590	12,949
<b>Tons of roasted concentrates produced</b>	10,869	12,394
Flasks of mercury recovered	1,250	2,345
<b>Metals contained in roasted concentrates produced</b>		
Copper (lbs.)	7.7 million	8.5 million
Silver (ozs.)	282,890	350,760
Tons of concentrates sold	13,332	12,661
Flasks of mercury sold	1,308	2,232
<b>Metals contained in concentrates sold (a)</b>		
Copper (lbs.)	9.5 million	8.7 million
Silver (ozs.)	335,000	366,000

NOTE: (a) Totals of metals contained in concentrates are subject to smelter deductions.

# Northgate Exploration Limited

EXECUTIVE AND HEAD OFFICE	Suite 2602, Royal Trust Tower, Toronto-Dominion Centre P. O. Box 27, Toronto 111, Canada Telephone: Area Code 416-362-2781, Telex 06-217766
DUBLIN OFFICE	Irish Base Metals Limited — Gortdrum Mines (Ireland) Limited 162 Clontarf Road, Dublin 3, Republic of Ireland Telephone: 332211, Telex 5881
LONDON OFFICE	Northgate Metals and Minerals Limited Stanhope House, 47 Park Lane, London W1, England Telephone: 01-491-7531, Telex 267615
MINE OFFICES	Irish Base Metals Limited Tynagh, County Galway, Republic of Ireland Gortdrum Mines (Ireland) Limited Tipperary, County Tipperary, Republic of Ireland
AUDITORS IN CANADA	Thorne Gunn & Co., Chartered Accountants Toronto, Canada
AUDITORS IN IRELAND	Griffin, Lynch & Co., Dublin, Republic of Ireland
BANKERS	The Toronto-Dominion Bank, Toronto, Canada Allied Irish Banks, Dublin, Republic of Ireland
TRANSFER AGENTS	CANADA — Crown Trust Company Toronto, Ontario; Calgary, Alberta; Vancouver, British Columbia UNITED STATES OF AMERICA — The Bank of New York, New York, N.Y. UNITED KINGDOM — Charter Consolidated Limited, Ashford, Kent, England
REGISTRARS	CANADA Canada Permanent Trust Company Toronto, Ontario; Calgary, Alberta; Vancouver, British Columbia UNITED STATES OF AMERICA Bankers Trust Company, New York, N.Y. UNITED KINGDOM Morgan Grenfell & Co., Limited, London, England
SOLICITORS	Fasken & Calvin, Toronto, Canada Olin, Murphy, Manuel & Lynch, New York, U.S.A. Whitney, Moore & Keller, Dublin, Republic of Ireland
STOCK EXCHANGE LISTINGS	New York Stock Exchange, New York, U.S.A. The Stock Exchange, London England Toronto Stock Exchange, Toronto, Canada
THE 1973 ANNUAL MEETING OF SHAREHOLDERS	of Northgate Exploration Limited, will be held May 4, 1973, in the Royal York Hotel, Toronto, Canada, at 11:00 o'clock A.M. A formal notice of the meeting, together with proxy statement and form of proxy, will be mailed to each shareholder during March, at which time management will request proxies.



## Directors' Report to Shareholders

The improved financial results for 1972 were due primarily to the higher prices for lead and zinc, and to a lesser degree, for silver. However, earnings were adversely affected by the Gortdrum Mine because of the continuing low prices for both copper and mercury which prevailed during the year.

### Financial

Net revenue from sales of metals and metal concentrates totalled \$16,715,000 compared with \$13,187,000 in 1971. Although this represents an increase of nearly 27% from the previous year's level, it is well below the 1970 figure when prices for the two principal metals — lead and zinc — were actually below those realized in 1972. This is principally the effect of increased smelter treatment charges and less favourable terms for certain concentrate sales.

Cash flow was \$6,736,000 equal to \$1.13 per issued share as compared with \$3,431,000 or \$0.57 per share in 1971.

Consolidated net income for the year was \$3,061,000 equal to \$0.51 per share as compared with a net loss in 1971, after an extraordinary item, of \$1,306,000 or \$0.22 per share. The extraordinary item in 1971 was a provision for the decline in the value of investments amounting to \$550,000 or \$0.09 per share. There was no comparable item in 1972.

The sensitivity of earnings and profit margins to metal price variations — an inherent risk factor of the mining industry — was clearly demonstrated in the comparative results for 1972 and 1971.

The following table shows the average metal prices received from sales of metals and metal concentrates during the past three years, which are based on London Metal Exchange quotations (G.O.B. producer price for zinc) expressed in equivalent U.S. funds:

	1972	1971	1970
<b>Tynagh Mine</b>			
Lead — per lb. ....	13.9¢	11.3¢	13.4¢
Zinc — per lb. ....	17.6¢	15.8¢	14.1¢
Copper — per lb. ....	48.9¢	49.7¢	63.7¢
Silver — per oz. ....	\$1.72	\$1.52	\$1.78
<b>Gortdrum Mine</b>			
Copper — per lb. ....	48.1¢	49.5¢	57.3¢
Silver — per oz. ....	\$1.69	\$1.55	\$1.73
Mercury — per flask ....	\$ 196	\$ 292	\$ 407

The different prices received for copper and silver by the Tynagh Mine and Gortdrum Mine is a factor of



the timing of concentrate shipments from the latter production unit as the prices of these two metals are often subject to erratic short term variations. The frequency of concentrate shipments from the Tynagh Mine has the effect of yielding an average price for the year that closely approximates the average price on the London Metal Exchange.

Further factors influencing the profit margins of the Company's mining operations are currency variations, domestic and world wide inflationary trends which are escalating costs for both labor and supplies, plus expenditures for environmental control improvements and conservation aspects.

The Company's investment in the development of the new underground mine and related facilities at the Tynagh Mine, cumulative from this and previous years' cash generation plus bank loans, now exceeds \$9 million. Expenditures on this project during 1972 amounted to \$1,709,000 with a further estimated \$410,000 to be expended during the current year. The underground mine is now completely operative and is scheduled to be in full production during the first quarter of 1974.

Working capital at December 31, 1972 was \$5,708,000 compared with \$128,000 at the 1971 year end. The table on page 2 summarizes the financial and production highlights with comparative figures for 1971.

*Control panel for crushing section of the dense media separation plant at the Tynagh Mine.*





## Operations — Tynagh Mine

The ore treatment rate at the Tynagh Mine was moderately below prediction principally with respect to the primary sulphide ore with a corresponding shortfall in concentrate production. However, this was substantially offset by the higher than anticipated metal content in certain of the concentrates.

The dense media separation plant for the pre-concentration of primary sulphide ore was phased in during the year with quite satisfactory operating results. The program of treating the complex zinc oxide ore was concluded during 1972 and on the basis of present schedules, treatment of the remaining mineable secondary ores will be completed during the first half of 1973.

## Gortdrum Mine

There was a planned reduction of ore treatment rates and concentrate production for 1972 and present schedules envisage a continuation of operations at the reduced rate during the current year. Although concentrate shipments were higher at 13,322 tons during 1972 as compared with 12,661 tons in 1971, these together with shipments of 1,308 flasks of mercury provided only a modest contribution to Northgate's cash flow. After non-cash write offs, Gortdrum Mines (Ireland) Limited recorded a net loss in 1972 of \$879,000.

The inventory of concentrates and metals at December 31, 1972, consisting of approximately 8,670 tons of concentrates plus contained and extracted mercury, is valued at \$2,221,000. These are valued at the lower of cost or estimated realizable value.

Mine operations are commented upon in greater detail on pages 16 to 20 of this report.

## Forecast of 1973 Operations

The currently projected operating schedule for the Tynagh Mine during 1973 envisages the mining and reclaiming from stockpiles of a total of approximately 800,000 tons of ore including around 70,000 tons of secondary ores with the remaining approximate 730,000 tons of primary sulphide to be preconcentrated in the dense media plant. Total feed to the concentrator will be in the neighborhood 550,000 to 570,000 tons, depending upon the rejection rate of the dense media plant.

The anticipated concentrate production is approximately 124,000 tons consisting of some 10,000 tons of bulk concentrates, 76,000 tons of lead concentrates and 38,000 tons of zinc concentrates.

As previously noted, income from the Gortdrum Mine is a factor of concentrate and metal sales rather than mine operations, as concentrates and metals produced are not taken into income until sold. Firm arrangements have been made for the sale of 12,700 tons of concentrates in 1973 and all of the existing inventory of concentrates is now classified as current as marketing is expected within the 1973 calendar year.

## Exploration

Active exploration continued on the State mining lease areas at both the Tynagh and Gortdrum mines. The main objective of this exploration is the location and development of mineable ore in close proximity to the existing treatment facilities.

Outside of the mining lease areas your Company holds 181 prospecting licences through its subsidiaries, and participates in the exploration of 11 other licences. The total area involved is approximately 2,500 square miles. During the year, an intensive exploration program was carried out involving geochemical and geophysical surveys with follow-up diamond drilling. Several interesting indications of mineralization were located and will be followed up in the coming year.

Among the better targets is an area northwest of the Tynagh Mine where high grade float has been found in a very favourable geological environment. Preliminary geochemical work has proved positive and a diamond drill program is planned on completion of geophysical surveys.

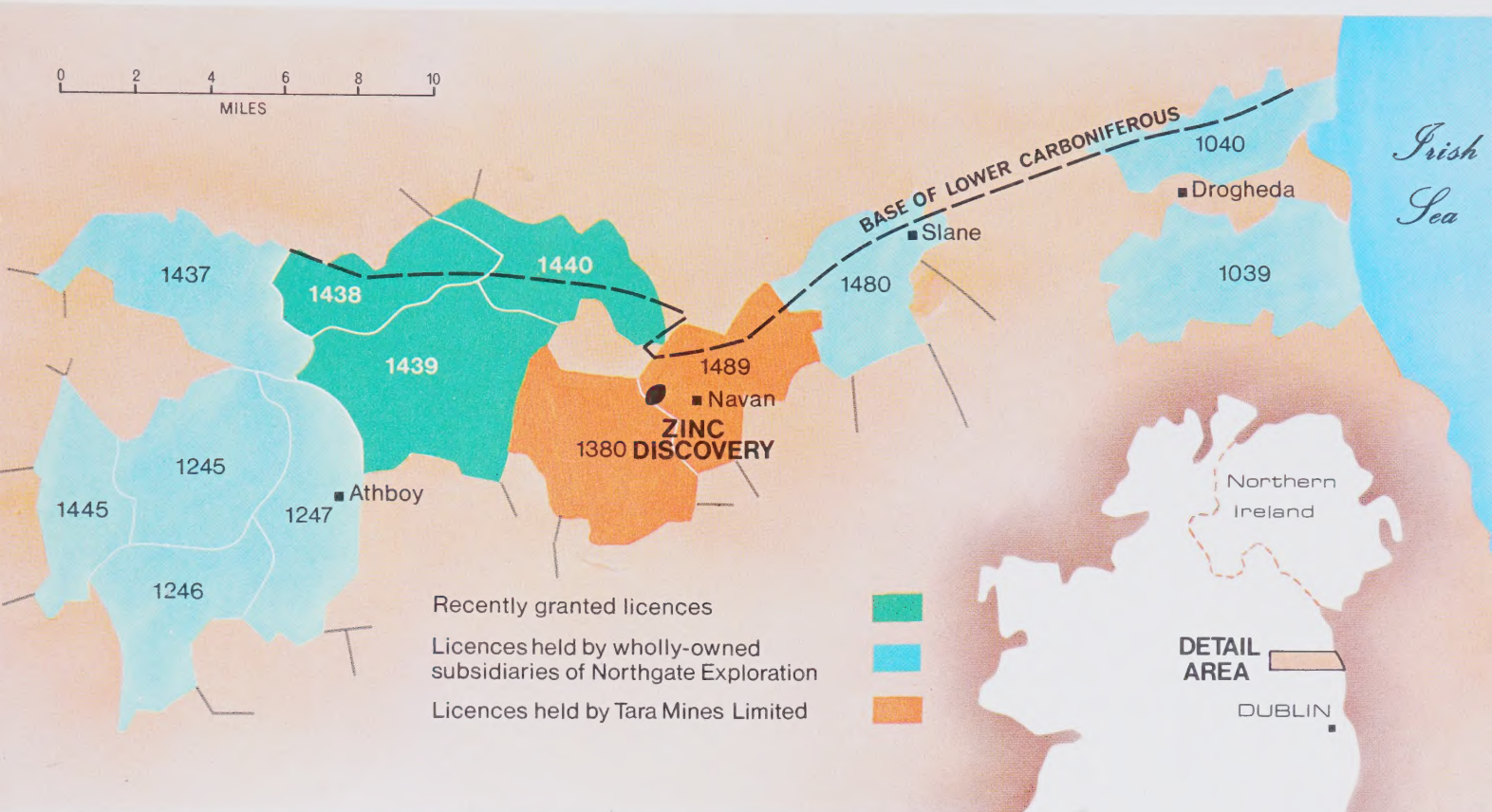
The newly granted prospecting licences in the Navan area — as shown on the appended map — are of particular interest. These newly issued licences, which are contiguous to other licences already held by the Company's subsidiaries, cover a favourable geological setting north and west of the prospecting licences on which a major zinc-lead deposit was found in late 1970. This discovery was made by Tara Exploration and Development Company Limited — an associated company. Preliminary work on these new licences has given encouraging results and diamond drilling is anticipated in 1973.

Your Company's expenditures for exploration, which was concentrated in Ireland during 1972, amounted to \$422,000. A larger amount has been budgeted for the current year.

## Affiliated Companies

The activities and interests of the principal affiliated companies — **Anglo United Development Corporation Limited, Westfield Minerals Limited and Whim Creek Consolidated N. L.** — complement your Company's





NAVAN AREA, IRELAND — Map showing the recently granted prospecting licences of Northgate's subsidiaries in relation to the licences on which the major zinc-lead deposit was found by Tara Exploration and Development Company Limited in late 1970.

activities by providing an exposure to mine developments in other countries in addition to Ireland, notably Greenland, Australia and Canada. The current activities of interest with respect to these affiliated companies are described in brief outline on pages 21 to 22 in this Report.

#### General

The theme of our 1972 Annual Report cover design is the transition of the Tynagh Mine operations from open pit to underground. This project represents not only a major capital investment but also a tangible expression of confidence in the future of your Company's operations in Ireland.

The Board of Directors acknowledge the loyalty and dedication of our employees as well as the continued support of the shareholders.

On behalf of the Board of Directors,

*Pat. J. Hughes.*

President

March 15, 1973







# *Financial Statements*

## *Northgate Exploration Limited*

### *Auditors' Report*

To the Shareholders of  
Northgate Exploration Limited

We have examined the consolidated balance sheet of Northgate Exploration Limited and its wholly owned subsidiary companies as at December 31, 1972 and the consolidated statements of income, retained earnings and source and application of funds for the year then ended. Our examination of the financial statements of Northgate Exploration Limited (the parent company), and of subsidiary companies of which we are the auditors, included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances. With respect to the subsidiary companies of which we are not the auditors, we have carried out such enquiries and examinations as we considered necessary in order to rely for purposes of consolidation on the reports of their auditors.

In our opinion these consolidated financial statements present fairly the financial position of the companies as at December 31, 1972 and the results of their operations and the source and application of their funds for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

THORNE GUNN & CO.,  
Chartered Accountants.

Toronto, Canada  
February 6, 1973



# Consolidated Balance Sheet — December 31, 1972

with comparative figures at December 31, 1971  
(Expressed in Canadian Dollars)

## ASSETS

### Current Assets

Cash, including term deposits .....	
Smelter settlements outstanding at estimated net realizable value .....	
Concentrates and metal on hand (note 3) .....	
Supplies at cost .....	
Accounts receivable and prepaid expenses .....	

### Investments in Associated and Other Companies

Associated companies	
Shares at cost (note 4) .....	
Advances .....	
Other listed shares (quoted market value, 1972, \$6,491,000; 1971, \$6,010,000) (note 6) .....	
Other shares, advances and participations at cost less amounts written off .....	
Less provision for decline in value .....	

### Fixed Assets

Buildings, machinery and equipment at cost (note 8) .....	
Land in Ireland at cost .....	
Mining claims in Canada .....	
Less accumulated depreciation (note 10) .....	

### Other Assets and Deferred Charges

Concentrates on hand, non-current (note 3) .....	
Preproduction expenditures less amortization (note 10) .....	
Underground development expenditures less amortization (notes 8 and 10) .....	
Other deferred charges (note 10) .....	

## LIABILITIES AND SHAREHOLDERS' EQUITY

### Current Liabilities

Bank advances (note 7) .....	
Accounts payable and accrued liabilities .....	
Government royalty payable .....	
Accrued Irish income tax on interest earned .....	
8% First mortgage bonds due December 1, 1972 .....	

### Shareholders' Equity

Capital stock (note 9)	
Authorized — 10,000,000 shares of \$1 each	
Issued — 5,981,799 shares .....	
Contributed surplus .....	
Retained earnings .....	

Approved by the Board: G. T. SMITH, Director.    S. P. BOLAND, Director.  
See accompanying notes.



# Northgate Exploration Limited

(Incorporated under the laws of Ontario)  
and its wholly owned subsidiary companies

	1972	1971
	\$ 50,000	\$ 125,000
	3,274,000	2,190,000
	4,668,000	4,073,000
	1,339,000	1,634,000
	313,000	498,000
	<u>9,644,000</u>	<u>8,520,000</u>
	4,957,000	5,063,000
	413,000	391,000
	7,346,000	6,902,000
	794,000	837,000
	<u>13,510,000</u>	<u>13,193,000</u>
	1,400,000	1,400,000
	<u>12,110,000</u>	<u>11,793,000</u>
	21,927,000	21,117,000
	1,037,000	806,000
	1,000	1,000
	<u>22,965,000</u>	<u>21,924,000</u>
	10,765,000	10,766,000
	<u>12,200,000</u>	<u>11,158,000</u>
		743,000
	1,129,000	2,259,000
	4,101,000	5,888,000
	748,000	966,000
	<u>5,978,000</u>	<u>9,856,000</u>
	<u>\$39,932,000</u>	<u>\$41,327,000</u>
	1972	1971
	\$ 1,846,000	\$ 4,383,000
	1,552,000	1,764,000
	349,000	176,000
	189,000	235,000
		1,834,000
	<u>3,936,000</u>	<u>8,392,000</u>
	5,982,000	5,982,000
	3,137,000	3,137,000
	<u>26,877,000</u>	<u>23,816,000</u>
	<u>35,996,000</u>	<u>32,935,000</u>
	<u>\$39,932,000</u>	<u>\$41,327,000</u>



Scene inside the dense media plant at the Tynagh Mine, part of the new treatment complex which was phased in during 1972.



# Consolidated Statement of Income

YEAR ENDED DECEMBER 31, 1972

with comparative figures for 1971

(Expressed in Canadian Dollars)

Revenue	1972	1971
Metals and metal concentrates .....	\$26,891,000	\$23,580,000
Deduct shipping, smelting and marketing expenses .....	10,176,000	10,393,000
	<u>16,715,000</u>	<u>13,187,000</u>
 <b>Operating Expenses</b>		
Operating expenses other than items set out below .....	8,468,000	7,392,000
Administrative and general expenses .....	835,000	1,277,000
Government royalty .....	263,000	61,000
Interest (including bond interest 1972, \$135,000; 1971, \$198,000) ..	317,000	303,000
Depreciation (note 10) .....	2,431,000	2,692,000
Amortization of preproduction and other expenditures (note 10) ...	1,244,000	1,495,000
	<u>13,558,000</u>	<u>13,220,000</u>
	3,157,000	(33,000)
Exploration (note 11) .....	422,000	1,081,000
	<u>2,735,000</u>	<u>(1,114,000)</u>
Interest, dividends and profit on sale of investments (note 12) .....	326,000	358,000
<b>Income (loss) before extraordinary item</b> .....	<u>3,061,000</u>	<u>(756,000)</u>
Provision for decline in value of investments .....		(550,000)
<b>Net income (loss) for the year (note 12)</b> .....	<u>\$ 3,061,000</u>	<u>\$(1,306,000)</u>
 <b>Earnings (loss) per share</b>		
Income (loss) before extraordinary item .....	51¢	(13¢)
Provision for decline in value of investments .....	<u>—</u>	<u>(09¢)</u>
Net income (loss) for the year .....	<u>51¢</u>	<u>(22¢)</u>

See accompanying notes



## Consolidated Statement of Retained Earnings

YEAR ENDED DECEMBER 31, 1972  
with comparative figures for 1971  
(Expressed in Canadian Dollars)

## Northgate Exploration Limited

	1972	1971
Balance at beginning of year .....	\$23,816,000	\$26,632,000
Net income (loss) for the year .....	3,061,000	(1,306,000)
	26,877,000	25,326,000
Dividends — 25¢ U.S. per share .....		1,510,000
Balance at end of year .....	\$26,877,000	\$23,816,000

## Consolidated Statement of Source and Application of Funds

YEAR ENDED DECEMBER 31, 1972  
with comparative figures for 1971  
(Expressed in Canadian Dollars)

Source of funds	1972	1971
Income (loss) before extraordinary item .....	\$ 3,061,000	\$ (756,000)
Add depreciation and amortization charged to income not requiring cash outlay .....	3,675,000	4,187,000
	6,736,000	3,431,000
Reduction in concentrates on hand, non-current .....	743,000	315,000
Other items .....	127,000	22,000
	7,606,000	3,768,000
<b>Application of funds</b>		
Investments .....	317,000	1,056,000
Additions to fixed assets .....	398,000	2,352,000
Underground mine development .....	1,311,000	3,221,000
Reduction in non-current portion of bonds payable .....		2,022,000
Dividends to shareholders .....		1,510,000
	2,026,000	10,161,000
Increase (decrease) in working capital .....	5,580,000	(6,393,000)
Working capital at beginning of year .....	128,000	6,521,000
Working capital at end of year .....	\$ 5,708,000	\$ 128,000

See accompanying notes



# Notes to Consolidated Financial Statements

YEAR ENDED DECEMBER 31, 1972

(Expressed in Canadian Dollars)

## 1. Principles of Consolidation

The consolidated financial statements include all wholly owned subsidiary companies; the more significant subsidiaries are:

Irish Base Metals Limited  
Gortdrum Mines (Ireland) Limited  
Powertrack Mining Limited

Smelter Corporation of Ireland Limited, which is 70% owned at December 31, 1972, is not included as it is still considering the feasibility of an Irish smelter operation and has reported neither profit nor loss as all of its expenditures are deferred to future operations. Investments in associated companies are recorded at cost.

## 2. Currency Conversion

Current assets and liabilities in other currencies are converted to Canadian dollars at December 31, 1972 and 1971 at rates of exchange which approximate the rates prevailing at these dates. Other assets and deferred charges, and the related depreciation and amortization charged to income, are converted at approximate rates prevailing when funds for the expenditures were provided. Other operating accounts have been converted at the average rate of exchange prevailing during each year.

## 3. Concentrates and Metal on Hand

Concentrates and metal on hand, in accordance with accounting practices established in prior years, have been valued as follows:

	1972	1971
Tynagh Mine, at estimated net realizable value . . .	\$2,447,000	\$2,296,000
Gortdrum Mine, at the lower of cost and estimated realizable value . . . . .	2,221,000	2,520,000
	4,668,000	4,816,000
Deduct Gortdrum concentrate classified as non-current . . . . .		743,000
	<u>\$4,668,000</u>	<u>\$4,073,000</u>

## 4. Associated Companies

	1972		1971	
	% of shares outstanding	Cost	% of shares outstanding	Cost
Westfield Minerals Limited . . . . .	45%	\$3,412,000	45%	\$3,412,000
Whim Creek Consolidated N.L. (note 5) . . . . .	20%	602,000	20%	602,000
Anglo United Development Corporation Limited . . . . .	17%	624,000	17%	624,000
Smelter Corporation of Ireland Limited . . . . .	70%	313,000	70%	313,000
Others . . . . .		6,000		112,000
		<u>\$4,957,000</u>		<u>\$5,063,000</u>

The quoted market value of the shares in Westfield Minerals, Whim Creek and Anglo United Development amounted to \$9,385,000 at December 31, 1972 and \$9,146,000 at December 31, 1971. However, because of the number of shares held, the quoted market value is not necessarily indicative of their realizable value. Quoted market

values are not given for shares in other associated companies as these shares are not listed.

The interest of Northgate Exploration in the net tangible assets of the associated companies amounted to \$2,505,000 at December 31, 1972 and \$2,289,000 at December 31, 1971.

## 5. Whim Creek Consolidated N.L.

Northgate Exploration has an option to purchase a further 2,250,000 shares of Whim Creek at the greater of Australian \$1.50 per share or a price 10% less than the average market price in Australia for the 90 days preceding the date of exercise of the option. The option expires on December 31, 1974.

Northgate Exploration and Westfield Minerals Limited, an associated company which has a similar option on 2,750,000 shares, and which with Northgate Exploration controls Whim Creek, have undertaken to exercise these options, in whole or in part, on request, to provide funds required by Whim Creek to carry out exploration or development programmes approved by the Board of Directors of Whim Creek.

## 6. Investment in W. R. Grace & Co.

Other listed shares include 100,000 common shares of W. R. Grace & Co. which Northgate Exploration received in 1971 and 29,032 shares which the company subsequently became entitled to receive in consideration for 1,156,571 shares of Western Mines Limited sold in 1971. A prospectus is being filed by W. R. Grace & Co. providing for the sale of the 129,032 shares. These shares are carried in the accounts at cost of \$4,006,000. At December 31, 1972 the quoted market value was \$3,419,000.

## 7. Bank Advances

The bank advances are secured by the hypothecation of certain of the investment securities.

## 8. Underground Development Expenditures

With commencement of production in 1972 expenditures on underground mine equipment in the amount of \$3,090,000 were reclassified as fixed assets.

Capital expenditures at the Tynagh mine to which the company is committed amount to a total of \$410,000 at December 31, 1972 and \$1,875,000 at December 31, 1971.

## 9. Stock Option Plan

Pursuant to the Officers' and Employees' Stock Option Plan, options may be granted until June 3, 1979 on up to 250,000 shares of the company's capital stock at prices not less than 90% of the

closing price for the company's shares on the Toronto Stock Exchange on the dates the options are granted. Options outstanding at December 31, 1971 were terminated during 1972. Options were granted during 1972 and are outstanding at December 31, 1972 on 250,000 shares at \$5.76 per share, exercisable 62,500 shares annually to April 30, 1976.

## 10. Depreciation and Amortization

Depreciation of fixed assets has been recorded at various rates to charge the cost to income over the shorter of the expected useful lives of the assets or the estimated ore reserves.

Preproduction expenditures are being amortized over the estimated lives of the open pit mines and underground development expenditures are being amortized over the estimated life of the underground mine.

The amounts by which the cost of shares in consolidated subsidiary companies exceeds the related book value of underlying net assets are being amortized over the estimated life of the Gortdrum Mine. The unamortized balances are included in other deferred charges.

## 11. Exploration

It is the company's policy to charge exploration expenditures to income in the period in which incurred. Development costs are deferred and amortized by charges to future income.

## 12. Income Taxes

Under present laws, the consolidated Irish subsidiary companies' income from mining operations is exempt from Irish income tax for twenty years from the dates of commencement of production but their income from all other sources is subject to tax at full rates. Irish income tax has been deducted from interest in the statement of income in the amount of \$33,000 for 1972 and \$15,000 for 1971.

Dividends from the consolidated subsidiary companies are not subject to Irish withholding tax or Canadian income taxes.

## 13. Remuneration of Directors and Senior Officers

Remuneration of the company's directors and senior officers (as defined by The Business Corporations Act of Ontario) amounted to \$265,000 for 1972 and \$365,000 for 1971.



# Review of Operations

## TYNAGH MINE

During the year 587,233 tons of ore were treated in the concentrator, including 165,011 tons of primary sulphide preconcentrated product from the dense media plant. The comparative ore treatment figure for 1971 was 675,781 tons, substantially all of which was open pit secondary ore.

Of the total 239,090 tons of primary sulphide ore initially treated in the dense media plant during 1972 with the resultant preconcentrated product of 165,011 tons, 34,860 tons were development ore from Zone II. With this exception, all other ore and concentrate feed came from the open pit reserves and stockpiles.

The following is a tabulation of the ore categories and their respective metal content which were treated in the concentrator during 1972:

Type	Tons of Ore	Lead %	Zinc %	Copper %	Silver ozs/ton
Sulphide	165,011	6.8	5.5	0.8	2.9
Lead oxide	140,366	15.6	3.6	0.7	4.4
Mixed oxide	121,199	17.2	11.0	0.2	3.8
Zinc oxide	160,657	3.0	17.4	—	—
Total	587,233				

The comparative ore treatment statistics for 1971 are:

Type	Tons of Ore	Lead %	Zinc %	Copper %	Silver ozs/ton
Lead oxide	228,978	12.2	2.5	1.1	5.2
Mixed oxide	172,950	11.1	9.0	0.4	2.6
Zinc oxide	273,853	3.4	17.4	—	—
Total	675,781				

The following is a summary of concentrate production for 1972 with comparative figures for 1971:

	1972	1971
Tons of lead concentrate	57,828	53,932
Tons of zinc concentrate (a)	35,872	43,779
Tons of bulk concentrate	39,100	52,905
Totals	132,800	150,616

(a) Includes 21,421 tons of zinc oxide calcine in 1972 and 40,467 tons in 1971.

The program of treating the secondary zinc oxide ore was concluded during the year. Of the total 211,790 tons included in the open pit reserves at the end of 1971, 160,657 tons were treated during the year and the remainder, consisting of lower grade material, has been excluded from reserves.

Concentrate production from the zinc oxide ore was above schedule by about 3,000 tons. Head grade for the mixed oxide ore was significantly higher than

predicted and the grade of the lead oxide was also moderately above expectation.

Although the lead grade and recovery from the pit primary ore were generally consistent with prediction, zinc grade and recovery were, for the most part, below forecast levels resulting in a shortfall of around 6,000 tons of zinc sulphide concentrates. The reconciliation of concentrate production for the year also shows a shortfall of about 9,000 tons of lead concentrates while bulk concentrate output was approximately 1,000 tons above prediction.

The approximate totals of metals contained in concentrates produced during 1972 were 90.4 million pounds of lead, 61.6 million pounds of zinc, 4.1 million pounds of copper and 1,242,000 ounces of silver. These figures are subject to smelter deductions and include some non-payable metals in different concentrates.

Significantly, although concentrate production for 1972 of 132,800 tons was below the scheduled rate (as revised) of 144,000 tons, the metals contained in the concentrates closely approximated the totals for 1971.

Metallurgical recoveries from the various ore categories treated during the year were:

	Recovery			
	Lead %	Zinc %	Copper %	Silver %
Sulphide (Primary)	83.2	60.7	75.9	83.3
Lead oxide	78.2	27.3	78.0	74.8
Mixed oxide	74.9	54.8	69.7	81.7
Zinc oxide	35.3	41.6	—	—

The dense media separation plant, now an integral part of the treatment process, functioned efficiently, rejecting approximately 31% of the bulk and retaining upwards of 95% of the contained metal in the resultant preconcentrated product. The phase-in of production of underground primary ore commenced during the latter part of 1972 and full production from this source is scheduled for the first quarter of 1974 following completion of mining in the open pit.

Direct operating costs per ton of ore mined and treated during 1972 averaged \$8.57 compared with \$7.10 per ton in 1971. The increase in the unit cost is principally attributable to the higher costs of treating the zinc oxide ore, which averaged \$10.10 per ton during the year. The costs for the treatment of the primary sulphide ore, including preconcentration in the dense media plant, averaged \$7.87 per ton.

## Production Schedule for 1973

Current operating schedule projected for 1973 assumes the mining of approximately 800,000 tons of ore



including some 70,000 tons of secondary ore, 340,000 tons of pit primary ore and approximately 385,000 tons of primary ore from Zone II underground. All of the primary sulphide ore will be preconcentrated in the dense media plant. The anticipated concentrate production from the concentrator is approximately 124,000 tons consisting of some 10,000 tons of bulk concentrates, 76,000 tons of lead concentrates and 38,000 tons of zinc concentrates.

On the basis of current projections, the remainder of the secondary lead oxide and mixed oxide ore will be treated during the first half of 1973. Accordingly, the concentrator is now being modified to treat primary ore in both mill circuits.

**Ore Reserves**

The mineable ore reserves as presently defined are those contained in Zone I, designated as the Open Pit Reserves, and Zone II, the primary Underground Reserves. Zone I reserves have been calculated in the same manner as in previous years, but using a re-designed ultimate outline for certain benches which was necessitated by a slide in the pit wall during November with a resultant exclusion from reserves of approximately 80,585 tons consisting of 66,635 tons of primary sulphide and 13,950 tons of mixed oxide ores. This exclusion, together with some reclassification of ore types, results in the following estimate of open pit ore reserves scheduled for production:

**Summary of Open Pit Reserves (Zone I)  
at December 31, 1972**

	Tons	Grade			
		Lead %	Zinc %	Copper %	Silver ozs/ton
Secondary lead oxide .....	20,000	13.0	1.4	0.7	3.5
Secondary mixed oxide .....	53,000	15.7	6.0	1.1	3.7
Primary sulphide .....	410,000	8.0	3.4	0.7	3.8
Total Open Pit Reserves	483,000				



*Underground at the Tynagh Mine.*





re conveyor from the underground crusher.

Following a detailed re-appraisal carried out at the end of the year as more specific information became available for the main ore block as a result of stope development, and taking into consideration the terms of the 1973 smelter contracts, the ore reserves for Zone II have been recalculated, including 5% dilution:

#### Underground Ore Reserves — Zone II — Primary Sulphide

	Tons	Grade			
		Lead %	Zinc %	Copper %	Silver ozs/ton
'A'	3,700,000	4.58	3.68	0.30	1.4
'B'	700,000	2.69	0.16	0.61	1.4
Total	4,400,000	4.28	3.12	0.35	1.4

Under the terms of the smelter contracts presently in effect and at current metal prices, it is doubtful if the material classified 'B' could be mined at a profit. However, the sale of concentrates produced from this material will be governed by new contracts, the terms of which have not yet been negotiated, and the profitability of mining this material will depend to a considerable extent on these terms and metal prices prevailing at that time.

#### Potential Ore — Zone III

The lead-zinc-copper mineralized zone designated Zone III is located about 600 feet east of Zone II and was tested by surface diamond drilling consisting of some 60 holes drilled 100 feet apart on 200-foot sections. Access to this zone for exploration and development will be from the 4700 level of the existing underground workings in Zone II.

Although the material in Zone III can not presently be classified as ore reserves until further work is carried out, recent interpretation of the results of this drilling, based on the same parameters used in calculating Zone II reserves, indicate the following tonnage and grade of mineralized material that could probably be mined at a profit:

Tons	Grade			
	Lead %	Zinc %	Copper %	Silver ozs/ton
*1,850,000	3.4	4.6	0.28	0.64

\*Includes 10% dilution.

The drift east on the 4700 level was extended 1,113 feet toward the Zone III area during 1972 and it is planned to continue this drive into the latter area during the current year. It is anticipated that stoping preparation may commence in Zone III during 1974.



## Exploration — Tynagh Mine Area

Exploration of the Tynagh Mine Area encompasses the State Mining Lease and the contiguous prospecting licences, an area of approximately 15 square miles along the North Tynagh Fault.

Work during 1972, a continuation of the long sustained program following the original mine discovery, consisted generally of reconnaissance geophysical surveying employing various techniques throughout the favourable structural settings immediately east and west of the mine. This also included surface diamond drilling comprising five holes exploring Turam anomalies along an approximate 2,500 foot extent of the North Tynagh Fault in the Lisduff-Carhoon area east of the mine.

The results of this drilling indicated that the Turam anomalies are essentially due to extensive dolomitization rather than sulphide mineralization.

Investigation of a number of other encouraging areas is continuing, including eight areas outlined by the reconnaissance geophysical surveying which warrant detailed follow-up work.

Nine holes for a total of 2,365 feet of drilling were put down from crosscuts in the 4700 level to investigate the 'D' Zone (Lower Muddy Limestones) where interesting copper mineralization was intersected in the evaluation underground drilling carried out during 1970. Although minor copper mineralization was intersected in seven of the holes drilled in the current series from the 4700 level, the values were not economically significant.

The area tested by this drilling is approximately 50 feet below the previous drilling and it was concluded that the tonnage potential of the 'D' Zone is very limited as it appears to be in the form of a narrow lens plunging westwards down the fault plane at a low angle.

## GORTDRUM MINE

Operations at the concentrating plant were reduced from a seven to five day work week during July in order to bring production in balance with concentrate marketing arrangements. It is expected that the five days per week schedule will be continued through 1973.

Substantial portions of the orebody and ore stockpiles contain significant amounts of mercury which is extracted to recover this metal and at the same time reduce the mercury content of the concentrates to generally acceptable levels for marketing.

The treatment procedure employed at the mine since 1969 involves the initial processing of the ore in the concentrator and subsequent roasting of the concentrates in the mercury plant.

In addition, the relatively high amounts of arsenic and antimony in certain of the concentrates in inventory, both roasted and unroasted, as well as in ore scheduled for treatment, necessitates the frequent blending of the ultimate product from the mercury extraction plant with other concentrates to reduce the content of these impurities to required limits.

The foregoing factors are significant to the mining program, ore treatment, marketing arrangements and scheduling of concentrate shipments.

## Production

The following are the pertinent operating and production data for the year together with comparative figures for 1971:

	Concentrator	
	1972	1971
Tons of ore milled	401,635	536,638
Grade:		
Copper — %	1.26	1.02
Silver — ozs/ton	0.93	0.88
Metallurgical recoveries:		
Copper	86.1%	83.7%
Silver	83.5%	79.2%
Concentrates produced — tons	11,590	12,949
Grade:		
Copper — %	37.50	35.40
Silver — ozs/ton	26.81	28.97
Mercury Plant		
Roasted concentrates produced — tons	10,871	12,394
Grade:		
Copper — %	34.34	34.38
Silver — ozs/ton	26.03	28.30
Mercury recovered — flasks	1,250	2,345

Direct operating costs per ton of ore treated, which includes mining, milling, roasting, mine services, mine administration, transportation and loading of concentrates, head office costs in Ireland and exploration costs in the mine block area, amounted to \$7.97 which compares with \$5.82 per ton in 1971. This increase is principally attributable to the lower rate of mining and milling.

## Mining

A total of 433,900 tons of ore averaging 1.17% copper was mined during the year of which 245,700 tons grading 1.37% copper were delivered to the crusher for treatment in the concentrator and 188,200 tons grading 0.91% copper were placed in stockpiles. The balance of the mill feed amounting to 157,000 tons averaging 1.08% copper was reclaimed from stockpiles.



During mining of bench No. 9 in the west end of the pit, waste was encountered in scheduled ore blocks due to previously unknown structures. A subsequent drilling program, completed since the year end, indicated further ore losses on benches Nos. 9 and 10, which, however, were partially offset by gains on benches Nos. 11 and 12 within the existing pit design.

This net depletion of 5,700 tons due to the re-evaluation of this area of the pit is reflected in the ore reserve calculation at December 31, 1972.

### Marketing of Metals and Concentrates

During the year 13,322 tons of roasted concentrates were shipped to smelters compared with 12,661 tons in 1971. The net proceeds from concentrates sold during 1971 was \$3,983,669 and the costs of producing these concentrates amounted to \$4,458,019.

A total of 1,308 flasks of mercury (76 lbs. per flask) was sold during the year the net proceeds from which amounted to \$223,863. The cost of producing the mercury sold amounted to \$531,658.

Gortdrum Mines (Ireland) Limited provided a modest contribution to the cash flow of Northgate in 1972, but the net loss incurred, after Government royalty, amortization and other deferred charges, amounted to \$879,000.

Metals contained in concentrates shipped during the year amounted to approximately 9.5 million pounds of copper and 335,000 ounces of silver.

### Ore Reserves

Estimated assured ore reserves in the mine open pit down to and including bench No. 12, at December 31, 1972, are as follows:

Tons	Grade	
	Copper %	Silver ozs/ton
875,000	1.52	1.05

### Note:

In addition to ore in place below bench No. 12, there is further ore grade material located adjacent to but outside of the originally planned pit boundaries. Neither of the two foregoing categories are presently scheduled for production and are not included in ore reserves. The feasibility of eventually mining this material is in question but studies are continuing. Among other considerations, the price of metals and mining costs would be further determining factors.

### Stockpiles at December 31, 1972

	Tons	Copper
Surge stockpile	2,100	1.36%
Stockpile No. 1 (sub-ore)	56,100	0.51%
Stockpile No. 2 (sub-ore)	551,100	0.56%
Stockpile No. 2a (sub-ore)	760,000	0.44%
Stockpile No. 3 (ore)	15,800	0.59%
Stockpile No. 3a (sub-ore)	67,000	0.60%
Stockpile No. 3b (ore)	13,600	1.41%
Stockpile No. 4 (ore)	2,700	0.63%

Under present marketing conditions and current copper prices, the material classified above as sub-ore grade could not be economically treated.

### Mine Area Exploration

Exploration continued throughout the Gortdrum Mine Area, including 1,158 feet of diamond drilling in eight holes northwest of the Mine. Seven of the holes intersected narrow zones of mineralization, the best being 3.15% combined lead-zinc over a core length of 26 feet. A geophysical anomaly was also delineated near this area, associated with a known major fault, and follow-up work on this target is currently in progress.

In total, 2,724 feet of diamond drilling in 14 holes was carried out during the year investigating areas in the general proximity of the mine.

### GENERAL EXPLORATION

As advised in last year's Annual Report, the Company's wholly owned subsidiary, Irish Base Metals Limited, is participating in an exploration program for oil and gas being conducted in Irish Continental shelf areas. The program is being carried out by Hibernian Oil and Gas Limited, an Irish company in which Irish Base Metals Limited holds a 20% interest, and Siebens Oil and Gas (U.K.) Limited, an 80% interest.

Hibernian Oil and Gas Limited is now the holder of the non-exclusive petroleum prospecting licence which was previously held by Siebens Oil and Gas (U.K.) Limited and has available to it more than 5,000 miles of seismic data covering the Continental shelf to the south and west of Ireland. Work is continuing on the interpretation and investigation of this data but it is not expected that the Irish Government will invite applications for exclusive exploration blocks until late 1973 or early 1974 at the earliest.



## AFFILIATED COMPANIES

### Anglo United Development Corporation Limited

The Company's principal current activities are in the Republic of Ireland where it has interests in a total of 74 prospecting licences including the following:

(a) Fifty-three licences which are the subject of a working option agreement dated July 1, 1971 with La Societe Miniere et Metallurgique de Penarroya (Penarroya). Under the agreement, Anglo United has undertaken to spend not less than \$100,000 in exploration on the licences prior to October 31, 1972. The option is renewable for three successive periods of one year to October 31, 1975 subject to expenditures being made during each yearly period in the higher of US\$100,000 or the amount required to maintain the licences in good standing.

During the period from July 1, 1971 to the fiscal year end October 31, 1972, Anglo United incurred expenses with respect to this working option in the amount of \$204,697.

(b) One licence which is wholly owned by Anglo United and 20 further licences held jointly with other companies with varying degrees of percentage interests, principally with Tara Prospecting Limited and Northgate's wholly owned subsidiaries. Twelve of the latter 20 licences in the Waterford Area have been optioned to Amax Exploration of U.K. Inc.

In Canada, Anglo United has various mineral rights in the Northwest Territories including an undeveloped 20-claim gold property in the Yellowknife Area and a 75% interest in a group of mining claims in the Camsell Lake District, plus varying modest interests in petroleum acreage in Western Canada.

### Activities 1971-72 Fiscal Year and Current

During the fiscal year ended October 31, 1972, Anglo United carried out exploration, principally concerned with the 53 licences under option from Penarroya. This consisted of geochemical and geophysical surveying plus geological mapping on several licences including the licence group in County Wexford where some 3,225 feet of diamond drilling was completed intersecting zinc mineralization at depths to 750 feet. Broken ground provided unsatisfactory drilling conditions in terms of cost and core recovery and drilling was terminated to review the information to date and to establish whether core recovery might be improved. Further drilling is scheduled for the Wexford licence group, meanwhile geochemical sampling is continuing.

More recently, and subsequent to the fiscal year end, Anglo United initiated drilling programs on the Faheygate lead-zinc-copper licence (460) in County Kerry and the licence near Mallow (1399) in County Cork. To the end of February 1973, approximately 1,700 feet of diamond drilling in six holes had been completed on the Faheygate licence, demonstrating that a deep easterly bearing trough of mineralized residual sands exist in the area containing appreciable amounts of zinc, lead and copper. The source of the mineral values has not yet been determined and drilling is continuing.

Diamond drilling commenced on the Mallow licence during February 1973 to probe a strong geochemical

copper anomaly aligned north-south whose dimensions are approximately 2,000 feet by 400 feet east-west. The geochemical sampling, initially to one foot depth then to six feet below surface indicated values at the latter depth in excess of 1,000 ppm copper. An induced polarization survey carried out over the area defined a moderate but sharp anomaly, almost coincident with the geochemical values.

Assays available by mid-March for the first three drill holes returned values in a range approximating 0.50 to 0.75 percent copper in core intersections up to 171 feet with accompanying silver values, generally in a range around 0.50 oz. per ton and up to a high of 1.39 ozs. in a core intersection of 30 feet.

Anglo United and its wholly owned investment subsidiary hold a block of 246,333 shares of Northgate Exploration Limited. Working capital at October 31, 1972 (exclusive of investments) was \$662,483.

At December 31, 1972, Northgate's interest in Anglo United Development Corporation Limited was 1,089,500 shares equal to approximately 17% of the presently issued capital.

### Westfield Minerals Limited

Both directly, and indirectly through subsidiary and affiliated companies, Westfield Minerals Limited has widespread exploration interests in Canada, Australia and Greenland.

Westfield's interest in Greenland derive from its approximate 15% interest (641,510 shares) in **Vestgron Mines Limited**. Vestgron recently reported that work to develop the Black Angel Mine and supporting facilities of Greenex A/S at Marmorilik, West Greenland, for production is proceeding satisfactorily and is on schedule. Greenex A/S is a wholly-owned subsidiary of Vestgron which in turn, is 61.5% owned by Cominco Ltd.

All equipment and materials necessary to permit construction to continue during the winter were procured and shipped to Marmorilik before the fjord was closed by winter ice, and the balance required to complete the project will follow as soon as the area is again open to navigation in June. Plans call for the introduction of feed to the concentrator by the latter part of 1973. Satisfactory arrangements have been made to sell or toll treat the main part of the concentrate output for the first several years of operation.

Vestgron had said previously that the concentrating plant would have a rated capacity of 1,650 metric tons of ore per day, an increase in the previously planned capacity of over 1,100 metric tons.

Vestgron's recent progress report stated that currently 450 men are working on site. After production commences the permanent work force will number approximately 250. In October, 1972, Greenex concluded arrangements with the Orion Banking Group, London, for a US\$41 million 7-year Euro-Dollar loan facility. This, together with approximately \$10 million principal amount of redeemable preferred Greenex shares which Vestgron purchased with funds made available by Cominco on an interim basis, should provide Greenex with the \$51.2 million previously estimated as required to complete the construction project and provide working capital.



Vestgron's consultant geologist has estimated that the measured and indicated reserves of the Black Angel Mine are in excess of 4 million metric tons averaging at least 20% zinc plus lead. Based on the available information concerning the mineralized occurrences on the property, Cominco's engineers are satisfied that further work will be successful in at least doubling this tonnage.

Westfield's interests in Australia derive from its 34.1% interest (3,750,000 shares) in **Whim Creek Consolidated N. L.** plus an option to purchase 2,750,000 additional shares at the greater of Aust.\$1.50 per share or a price equal to a 10% discount on the average market price in Australia for the 90 days preceding the date of exercise of the option. The option extends to December 31, 1974. Reference is made to the separate corporate profile on Whim Creek Consolidated N. L.

In Canada, Westfield interests include the 24-claim group in Rennie Twp., Ontario, where previous exploration indicated a zone of zinc and silver mineralization. During November 1972, Westfield granted to Freeport Canadian Exploration Company of New Orleans, U.S.A. ("Freeport") a working option on the Rennie Twp. property, renewable for five successive periods of one year to 1977, subject to certain expenditures being made in exploration during each yearly period. Upon an aggregate expenditure of \$200,000 by November 1975, Freeport will have earned a 40% interest in the property and has a continuing right to increase this percentage interest to 75% by the expenditure of an aggregate amount of \$500,000 by November 1977.

The agreement further provides that if Freeport elects to bring the property into production, Westfield can maintain its 25% interest by contributing 25% toward any further expenditures, or in lieu thereof an interest diminishing to a minimum right to receive 0.5% of the net smelter return of ores, concentrates or metals shipped from the property. Freeport has the usual right to surrender its rights or terminate the option at any time during the currency of the agreement.

At December 31, 1972, Northgate's interest in Westfield Minerals Limited was 2,803,075 shares equal to approximately 45% of the presently issued shares.

#### **Whim Creek Consolidated N. L.**

The Company's activities have for several years been primarily concentrated in the preliminary evaluation of the geologically favourable areas in the Pilbara Region of Western Australia. Geological staff was increased at the beginning of 1972 to allow for an expanded general exploration program extending into other areas of Western Australia, as well as in Queensland and New South Wales. This latter general program encompasses a large number of partially developed properties and basic exploration projects.

Exploration expenditures, including participations in joint ventures, amounted to \$598,581 during the fiscal year ended June 30, 1972.

The principal projects of current interest are:

1) The **Mt. Sholl Project**, which is wholly owned by Whim. During the period under review, major exploration effort was directed at the B2 and A1 areas

with significant grades and widths of copper-nickel sulphides being intersected in drilling at both locations. Within the Sholl complex there is an additional six areas with similar geological and geophysical characteristics to the B2 and A1 areas and surface exploration to develop drill targets have been started on several of these.

2) The **Roebourne Joint Venture** in which Whim Creek has a 54.57% interest and Australian Anglo American Services Limited a 45.43%. Exploration in the immediate vicinity of the original copper-nickel find at Ruth Well has shown on a relatively small, though high grade, structurally complex mineralized body. Exploration was continued on similar copper-nickel prospects in the general area, including two well defined geochemical and geophysical anomalies on the South Mt. Marie and Ruth Well North areas which warrant diamond drilling at an early stage.

3) The **INY-Whim Creek Joint Venture** in which Whim Creek has a 82.5% interest and United States Steel International (New York) Inc., has a 17.5% interest. Preliminary drilling at Whundo South where a strong copper-nickel geochemical anomaly with a strike length of about 1,200 feet was located, gave encouraging, anomalous copper-nickel values. Additional percussion drilling was commenced over other areas, including the Munni Munni North.

4) The **Whundo Joint Venture** which is under the management of Consolidated Goldfields Australia Limited. Under the farm-out agreement, the latter company can earn a 51% interest in the joint venture properties, in which event Whim Creek will have a continuing interest of approximately 38.5% and Australian Anglo American and Freeport of Australia, Inc., a combined net interest of approximately 10.5%. Exploration of this project will be continued during the 1973 field season.

5) The **Mons Cupri Property** in which Whim Creek has a non-contributory interest of 31⅓% and the remainder held by Australian Inland Exploration Inc. The managers of the project, Australian Inland, reported that during the year ended June 30, 1972, detailed mapping of the mineralization in the adits and additional metallurgical test work was completed. In addition, detailed mapping of the volcanic fragments and soil and rock geochemistry was undertaken to aid in finding repetitions of the Mons Cupri mineralization in areas outside of the known deposit. The most recent report stated that detailed mapping of the main areas of interest is continuing and results of recent geochemical surveys were being evaluated.

At December 31, 1972, Northgate's direct interest in Whim Creek was 2,250,000 shares equal to 20.4% of the issued shares and its indirect beneficial interest (through its shareholding in Westfield Minerals) is equal to approximately 36%. Northgate also has an option to purchase an additional 2,250,000 shares of Whim Creek on the same terms and conditions as the option granted to Westfield Minerals Limited.

Whim Creek is adequately funded for its presently planned exploration programs, reporting working capital for the period ended June 30, 1972 of \$2,612,390. Interest received during the year, mainly from short term investments, amounted to \$226,506.



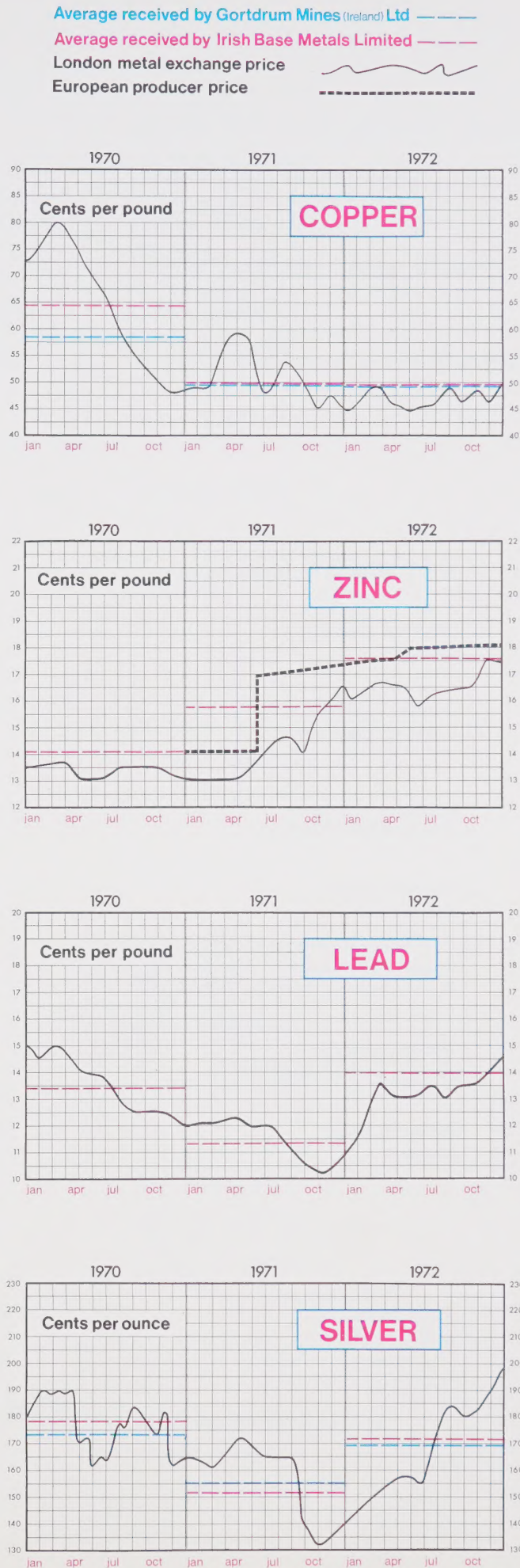
## Review of Metal Prices

The downtrend of metal prices during 1972 moderately reversed the pattern of the previous year, particularly with respect to lead, zinc and silver. Copper prices, which remained low during the year, started an uptrend during the fourth quarter of 1972 which has, to date, been sustained. The charts appended show the average monthly spot prices quoted on the London Metal Exchange, expressed in equivalent U.S. funds, during 1970, 1971 and 1972, and the weighted average prices received by the Company's mining subsidiaries for these metals for each of the periods.

London Metal Exchange prices for lead have advanced from a 1972 low of around 10¢ per pound to a high of around 13¢ at the year end, subsequently advancing further to a recent peak around 16¢ per lb. The recent 10% devaluation of the U.S. dollar has introduced a new factor into world metal markets, and is undoubtedly a major influence in the uptrend of zinc, lead and silver prices.

The absence of the traditional gap between the L.M.E. and the North American producer price for lead appears to anticipate another increase in the U.S. and Canadian price. This expectation, however, is somewhat clouded by the recent proposal by the U.S. to reduce its strategic stockpile of lead which presently totals over a million tons of the metal in usable quality. The outlook for zinc is somewhat clearer in view of the increase on February 28, 1973, in the European producer price to £190 per metric ton, which converts to the equivalent of around 20¢ per lb.

Copper continues its usual unpredictable course.



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